

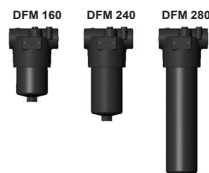
## HYDAC

## INTERNATIONAL



### Pressure Filter DFM with Differential Pressure Relief Valve

up to 280 l/min, up to 400 bar



#### 1. TECHNICAL SPECIFICATIONS

##### 1.1 FILTER HOUSING

###### Construction

The filter housings are designed in accordance with international regulations. They consist of a filter head and a screw-in filter bowl.

Standard equipment:

- differential pressure controlled relief valve
- without pressure release / oil drain plug
- connection for a clogging indicator

##### 1.2 FILTER ELEMENTS

HYDAC filter elements are validated and their quality is constantly monitored according to the following standards:

- ISO 2941
- ISO 2942
- ISO 2943
- ISO 3724
- ISO 3968
- ISO 11170
- ISO 16889

Filter elements are available with the following pressure stability values:  
Betamicon® (BH4HC): 210 bar

##### 1.3 FILTER SPECIFICATIONS

Nominal pressure	400 bar
Fatigue strength	At nominal pressure 10 <sup>6</sup> cycles from 0 to nominal pressure
Temperature range	-30 °C to +100 °C (-30 °C to -10 °C: p <sub>max</sub> = 200 bar)
Material of filter head	EN-GJS-400-15
Material of filter bowl	Steel
Type of clogging indicator	VD (differential pressure measurement up to 420 bar operating pressure) 5 bar (others on request)
Pressure setting of the clogging indicator	20 bar (others on request)
Cracking pressure of differential pressure controlled relief valve	20 bar (others on request)
<b>NOTE:</b> On request, ON elements (pressure stability up to 20 bar) can also be used at lower cracking pressures.	

##### 1.4 SEALS

NBR (=Perbunan)

##### 1.5 INSTALLATION

Inline filter

##### 1.6 SPECIAL MODELS AND ACCESSORIES

With pressure release / oil drain plug (SO184)

##### 1.7 SPARE PARTS

See Original Spare Parts List

##### 1.8 CERTIFICATES AND APPROVALS

On request

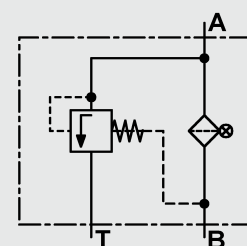
##### 1.9 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

- Hydraulic oils H to HLPD DIN 51524
- Lubrication oils DIN 51517, API, ACEA, DIN 51515, ISO 6743
- Compressor oils DIN 51506
- Biodegradable operating fluids VDMA 24568 HETG, HEES, HEPG
- Fire-resistant fluids HFA, HFB, HFC and HFD
- Operating fluids with high water content (>50% water content) on request

##### MAINTENANCE INSTRUCTIONS

- Filter housings must be earthed.
- When using electrical clogging indicators, the electrical power supply to the system must be switched off before removing the clogging indicator connector.

##### Symbol for hydraulic systems



## 2. MODEL CODE (also order example)

DFM BH/HC 240 S E 10 D 1 . X /-L24

### 2.1 COMPLETE FILTER

#### Filter type

DFM

#### Filter material of element

BH/HC Betamicon® (BH4HC)

#### Size of filter or element

DFM: 160, 240, 280

#### Operating pressure

S = 400 bar

#### Type and size of connection

Type Port	Filter size
	160 240 280
E G1 1/4	• • •

#### Filtration rating in µm

BH/HC : 3, 5, 10, 20

#### Type of clogging indicator

Y plastic blanking plug in indicator port

A stainless steel blanking plug in indicator port

B visual

C electrical

D visual and electrical

for other clogging indicators,  
see brochure no. 7.050../..

#### Type code

1

#### Modification number

X the latest version is always supplied

#### Supplementary details

L... light with appropriate voltage (24, 48, 110, 220 Volt)

LED 2 light-emitting diodes up to 24 Volt

SO184 pressure release/oil drain screw

V FPM seals

only for clogging  
indicators type "D"

### 2.2 REPLACEMENT ELEMENT

0240 D 010 BH4HC /-V

#### Size

0160, 0240, 0280

#### Type

D

#### Filtration rating in µm

BH4HC: 003, 005, 010, 020

#### Filter material

BH4HC

#### Supplementary details

V (for descriptions, see Point 2.1)

### 2.3 REPLACEMENT CLOGGING INDICATOR

VD 5 D . X /-L24

#### Type of indicator

VD differential pressure indicator up to 420 bar operating pressure

#### Pressure setting

5 standard 5 bar, others on request

#### Type of clogging indicator

D (see Point 2.1)

#### Modification number

X the latest version is always supplied

#### Supplementary details

L..., LED, V (for descriptions, see Point 2.1)

### 3. FILTER CALCULATION / SIZING

The total pressure drop of a filter at a certain flow rate Q is the sum of the housing  $\Delta p$  and the element  $\Delta p$  and is calculated as follows:

$$\Delta p_{\text{total}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}}$$

$$\Delta p_{\text{housing}} = (\text{see Point 3.1})$$

$$\Delta p_{\text{element}} = Q \cdot \frac{SK^*}{1000} \cdot \frac{\text{viscosity}}{30}$$

(\*see point 3.2)

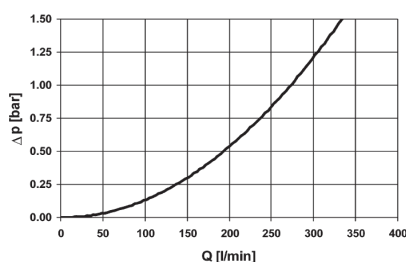
For ease of calculation, our Filter Sizing Program is available on request free of charge.

**NEW:** Sizing online at [www.hydac.com](http://www.hydac.com)

#### 3.1 $\Delta p$ -Q HOUSING CURVES BASED ON ISO 3968

The housing curves apply to mineral oil with a density of 0.86 kg/dm<sup>3</sup> and a kinematic viscosity of 30 mm<sup>2</sup>/s. In this case, the differential pressure changes proportionally to the density.

##### DFM 160/240/280

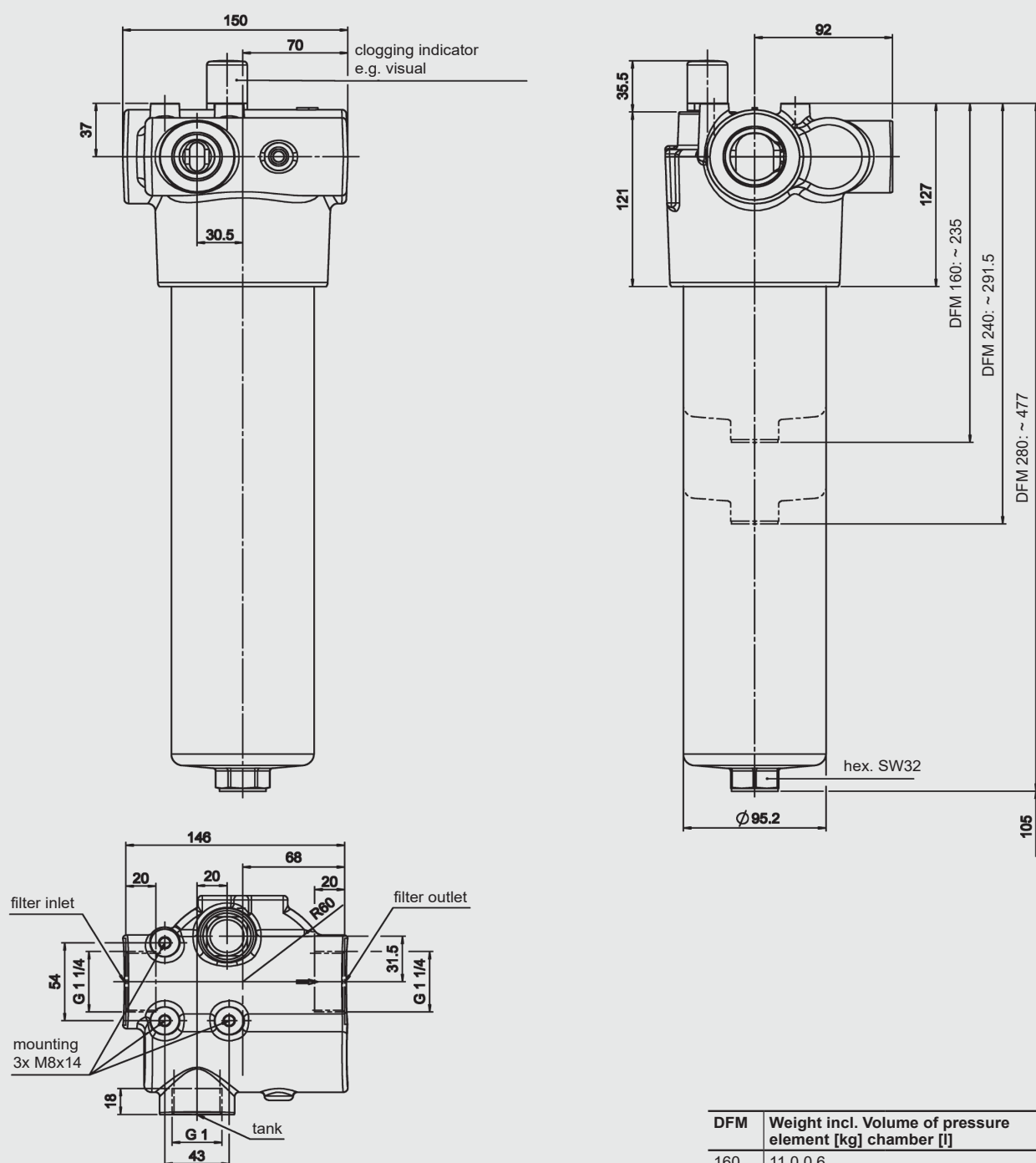


### 3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm<sup>2</sup>/s. The pressure drop changes proportionally to the change in viscosity.

DFM	BH4HC			
	3 μm	5 μm	10 μm	20 μm
160	16.8	10.4	5.9	4.4
240	10.6	6.8	3.9	2.9
280	5.7	3.4	1.8	1.6

## 4. DIMENSIONS



DFM	Weight incl. element [kg]	Volume of pressure chamber [l]
160	11.0	0.6
240	12.5	0.8
280	17.1	1.45

### NOTE

The information in this brochure relates to the operating conditions and applications described.  
For applications or operating conditions not described, please contact the relevant technical department.  
Subject to technical modifications.

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